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No. 3.

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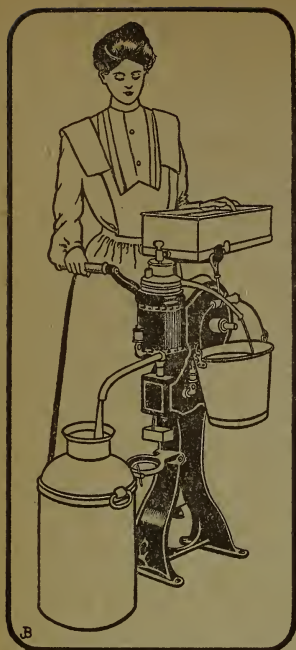
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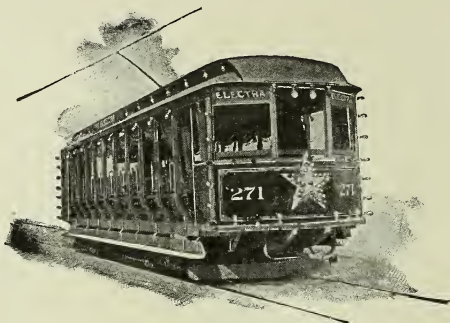
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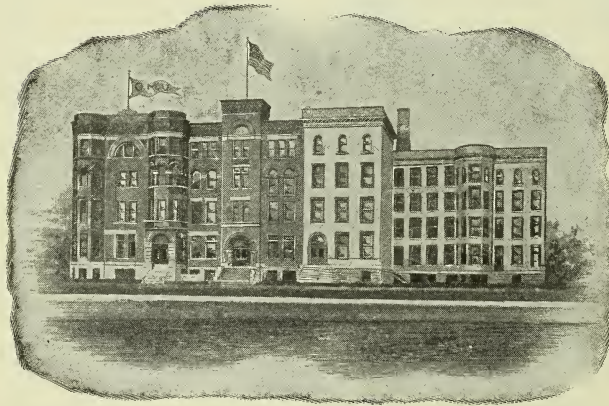
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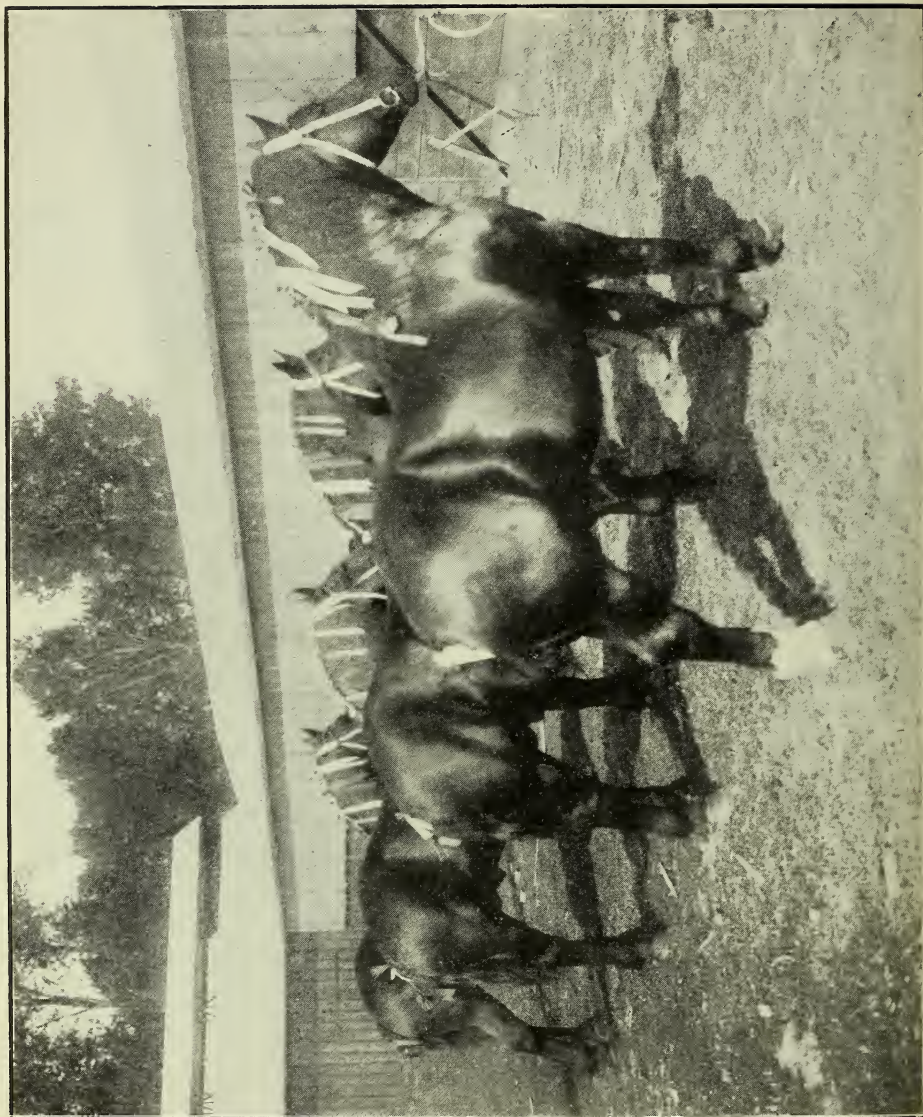
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VOL. XII. OHIO STATE UNIVERSITY, COLUMBUS, DECEMBER, 1905 No. 3

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## EDITORIAL COMMENT

There are landslides and landslides. But the point that we wish to make is that the farmers in the late election were really the cause of this slide. The first returns showed no real advantage for either side, but as the rural votes were counted out there was a steady increase on the one side and almost a standstill on the other. We are not "taking sides," but we will be glad when the agricultural world as a whole can band themselves together for their own protection whatever the point at issue be; when they will coöperate among themselves; when they will have minds of their own and not follow blindly the dictates of the smooth-talking politician. The results show that they have on this occasion held together on what they took to be the correct stand, and this we can say is almost without a precedent.

"Whatever is, is right" may be true in some cases, but in others it will not hold. In many of our county fairs there is a prize awarded to the best animal, or what is supposed to be the best, of a given type, and this class is open to all breeds. In other words this is the





grand championship class. It rarely if ever happens that the judge is a breeder of all the different breeds represented; it is more probable that he has given his attention to the raising of only one breed. He is more or less prejudiced in favor of that kind of stock or he would certainly not be raising them. If he raises Shorthorns and awards the prize to that breed, even though he does the square thing, the exhibitors of the other breeds will be dissatisfied and say that the judge was prejudiced. Or if he is not a breeder at all he will still favor one breed more than another. A satisfactory way around this difficulty it seems would be to do away with this grand championship class entirely, especially at our county fairs, and put that extra money on some of the other classes as, for example, the breeder's herd.

---

The Rural New Yorker prints the following:

"Some of the scientific men seem to grieve because farmers do not take their say-so without a grain of salt. The fact is that farmers are sizing up the situation accurately. They like suggestions, but will depend upon practical experiments for final answer."

This has been true of the nitro-cultures which have within the last few years been put upon the market. Some scientists have made the claim that this is *the* way to secure soil inoculation for the growth of leguminous crops and especially *that* of alfalfa.

There is still a whole lot to be learned about this question of inoculation and practical men are beginning to wonder if there is as much in it as was at first thought. If inoculation at all it seems that the safest way is to take the soil from an old alfalfa field where the plants bear numerous tubercles on their roots.

In this way you are sure of getting your bacteria. But the young alfalfa is a very tender plant, easily destroyed by drought or choked out by weeds and responds readily to applications of stable manure and a thorough preparation of the ground. Reverting again to the inoculation problem we will say that the importance of this method may, in time, be fully demonstrated, but as yet the farmers do well in accepting a great deal of the literature on this subject only with caution.

---

### The Same Old Story

A million must toil that a thousand may play—

It's the same old story;  
The man in the shop yearns to pitch the new hay,

The hand in the field longs to hurry away to labor in town for two dollars a day—

It's the same old story;  
And wife, because it's the fashion, will sigh

For a month at some place where the prices are high,

While hubby—um, well, we can guess, you and I—

It's the same old story.

The city boy fools with the big bumble bee—

It's the same old story;  
An urchin is bent o'er a weak woman's knee—

It's the same old story;  
The same sky dips down to the same spreading sea

As it did when Eve tackled the wrong apple tree,

And hello! Why, yes; here is your old college chum

With his heels all run down and a bulbous nose—Come!

Why, surely, old man, for the sake of well—um—

It's the same old story.

—S. E. Kiser, in Chicago Record-Herald.

**Professor Skinner on the International**

"The influence of the International Live Stock show is of such great importance and so far-reaching that it deserves the consideration of every farmer and stockman in the country. Nothing can more forcibly impress people with the importance of good breeding, and quality in animals. The very best types of horses, cattle, sheep and hogs are to be seen at the International. The fat classes also illustrate the work of the feeder. The feeding of fat stock for show is not guess work; but rather the right use of feeds wisely chosen and supplied to the animal in appetizing form in such quantities as to produce animals of the finest form and finish.

"The International is one of the most valuable educators for the mass of farmers and stockmen. Agricultural colleges are touching the life and work of men on all sides. The International exemplifies their teaching and promotes their interests in a way that nothing else can do. Doubtless the very fact that the International management has permitted our colleges and stations to compete in the show ring with practical breeders and feeders of experience, has done much to establish a spirit of confidence between these men. This means appreciation and co-operation where formerly there was talk of "book learning" and "theory." Feeders have learned that college men are practical and that they are unselfish with their knowledge.

"The value of such an exhibit of live stock cannot be overestimated. Housed under one roof as it will be this year, classified and arranged in an intelligent and systematic way, and shown under favorable conditions for inspection, it will offer the most excellent opportunity for the comparative study of live stock in the world. Farmers should take ad-

vantage of this opportunity and encourage all the young men who contemplate farming to attend. It means inspiration, improved live stock, better methods, greater profits and broader minded farmers.

"The new building which will be used this year will be the largest and most completely equipped building of its kind in the world."

---

**Ensilage—Its Production and Use**

GEORGE H. HYSLOP.

Ensilage or silage is green forage which is preserved in a succulent condition in air tight rooms called silos. Ancient records lead us to believe that the Egyptians stored seeds in a sort of silo but we have no record of any green forage being preserved in this manner until about one hundred years ago. At that time, it was preserved in pits or holes in the ground, which were lined with boards, straw, or some other substance, and covered with earth. Then trenches were dug and the green forage piled in them. These heaps were allowed to extend above the surface, and were then covered with earth.

The next step taken was the building of a square stone silo, entirely above ground. From this, by gradual evolution has come the octagonal silo, and finally the round type, built of stone, concrete, wood, or brick, which is without a doubt the most satisfactory and economical type yet produced.

In any form of silo, the exclusion of the air to as great an extent as possible is absolutely essential, as its presence always results in molding.

The green forage for the silo may be put in whole or run through a cutter and cut up into short lengths. The latter method is preferable as the silage packs

closer together and a better exclusion of the air is secured. Then too, the cut ensilage is much more convenient in feeding and handling.

Within a day or so after filling, the ensilage becomes quite hot. For a long time it was thought that this heating was due to the action of bacteria. However, S. M. Babcock and H. L. Russel, produced good ensilage in the total absence of bacterial action. In experimenting with cut corn in piles in the open, they found that the temperature of the corn raised, and that if the corn was wounded, the temperature increased still more. This they attributed to the natural respiration of the plant. In the silo there is oxygen present in the air spaces, but this is rapidly taken up by the plant tissues in intra-molecular respiration, and carbon dioxide is given off. So these men have concluded that the heating is due to the natural respiration of the plant cells, especially in wounded plants and also to the intra-molecular respiration. Bacteria cannot grow in the absence of oxygen, and hence cannot grow here unless some air gets in somewhere. The conclusion reached by these men is that instead of bacteria having a beneficial effect on the ensilage, they are in reality a detriment as only the putrefactive bacteria noticeably effect the ensilage.

Contrary to the old theory that a high temperature was necessary in the production of good ensilage, Babcock and Russel say that it is not at all essential as they have produced good ensilage in small quantities under laboratory conditions in which the temperature did not exceed 75° F. They attribute the high temperature of some silos to the fact that the heat accumulates in the large quantities of ensilage, and is not radiated as rapidly as in smaller quantities.

Quite a number of forage plants are put into the silos, but by far the most important of these is corn. Its yield is estimated at about fifteen tons per acre and its adaptability to different regions makes it a general favorite. Various varieties are used but those having short internodes and many leaves as well as a goodly amount of grain are preferable. There are also various mixtures of corn with other plants such as soy beans, or cow peas, which have been very satisfactory. Other plants used as sorghum, millet and clover which makes excellent ensilage but is very hard to keep from spoiling. The pulp from the manufacture of beet sugar is also stored in silos.

We have two kinds of corn ensilage which are commonly spoken of as sweet or sour. The greener the corn the sourer the ensilage will be. The corn is put in after the ears begin to glaze and since the protoplasm of the greener cells is more active and their period of activity lasts longer, the by-products of this activity (in this case organic acids) are produced in larger quantities than in more mature corn, hence the green ensilage is sourer. Beef men especially recommend the sweet ensilage, while the dairy men seem to like the sour kind better.

However, the use of ensilage as a feed is becoming more general every year. It is fed most extensively to cattle, but many sheep men are advocating its more general use in connection with their line of business.

There are several reasons why ensilage is becoming so popular as a feed for stock. First of all, it is a convenient and cheap method of handling a corn crop. It is generally conceded that its use tends to improve the quality of the skin and hair. The condition of the digestive system is benefited by its use and it is palatable.



table after the animals get accustomed to its peculiar flavor.

Then the convenience of handling and the minimum of storage room required must be considered. Three tons of ensilage have about the same feeding value of one ton of hay and it takes up about one-third as much room. The best results are obtained by using ensilage in connection with grain and hay. It is a very important factor in soiling systems, as, by its use only, can we provide sumulent food during the winter. Then in those regions of dry summers it is a splendid supplement to pastures.

---

#### Some Prices Paid for Shorthorns

At the first of the Scotch Shorthorn sales held at Tillycairn on October 10, and conducted by Wm. Duthie and John Marr, the top notcher was Proud Monarch of the old Venus or Guelder Rose tribe. He was a solid red and was knocked down to a Mr. Mitchell at the extraordinary price of 470 guineas, or in our money \$2193.33, there being \$4.66 2-3 per guinea. Diamond Star, a pure white calf of the Broadhocks' blood, sold for 150 guineas; Royal Choice, 420 guineas; and Royal Victor, 400 guineas. Of the females in the aged class Lavender Thyme 12th sold for 280 guineas; Waterloo Vine, 160 guineas; and Crescent 9th, 115 guineas. In the heifer class Proud Marigold brought 155 guineas; Royal Rose, 120 guineas; and Royal Violet, 100 guineas.

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In December the bronze trophy in Townshend Hall, won by the judging team of 1904, will be returned to Chicago, where it will be placed on exhibition in the rooms of the Saddle and Sirloin Club, where it will be held until delivered to the 1905 winning college.

#### The National Grange

WHAT THE GRANGE HAS ACCOMPLISHED.

Issued by the National Grange.

The work of the Grange is of such a nature that its greatest accomplishments can never be cited only in a general way. We may state how many dollars have been saved to the farmers of the country through coöperative trade arrangements, and through mutual insurance companies, both fire and life, and something definite can be stated in regard to the vast saving to the farmers of the country through wise legislation secured, and unwise legislation defeated through the influence of the Grange; but when we undertake to make any estimate of the moral, social, and mental development that has been brought to the farmer and his family through Grange influence and Grange teaching, we are lost in the magnificent results obtained. It is absolutely impossible to give any intelligent estimate of the development of the noble principles of manhood and womanhood in the mind and heart of the million of people that have been connected with this Order, and of the millions of other people with whom they have been associated. It is along this line that the grandest results have been achieved. Thousands of farm homes have been made happier and better, and the members of farmers' families have been reaping the highest enjoyments of life through the quickened mental abilities by Grange influence, while a higher ideal in life has been reached through the development of the heart by true Grange teaching. With these general statements, we leave the most important results during thirty-two years of Grange work to the imagination of our readers.

In matters of legislation, among the first objects to claim the attention and engage the efforts of the Grange were

the State Agricultural Colleges of the country, many of which in their early days were united with, and became a part of, classical colleges and universities, thus in a large measure destroying their identity as agricultural colleges, and rendering them practically worthless for the objects for which they were established.

Through the influence of the Grange a separation has been effected in a majority of states, and distinct agricultural and mechanical colleges have been established. In most of those states where the efforts for a separation have not been successful, the college authorities have been forced to give much greater recognition to agriculture, and with but few exceptions these institutions, separate and combined, are now doing a grand work in educating the farming youth of the nation.

It was through the direct influence of the Grange that the additional appropriations for agricultural colleges by the 1890 act of Congress were confined to instruction only in agriculture and the mechanic arts.

The Hatch act for the establishment of state experiment stations, which are doing such a great work for the agriculture of this country, became a law by reason of the efforts of the Grange to secure its enactment.

It was through the influence of the Grange that the Department of Agriculture at Washington was raised to the dignity of other departments of the National government, to be presided over by a Secretary of Agriculture in the President's Cabinet, thus giving farmers a voice in the policy of the government as it affects the agricultural interests of the country.

The transportation question engaged the attention of the members of the Grange in the early days of the Order,

and in the famous Iowa case the decision was handed down from the Supreme Court of the United States that all railroad franchises are subject to the power which created them; or, in other words, that "the creature is not greater than the Creator."

Through the direct influence of the Grange, the Interstate Commerce Commission was established by act of Congress, which in a measure aims to control interstate traffic, and gives the people a means of redress from the injustice and extortions which are often practised by those gigantic corporations, thereby saving the people great annoyance and vast sums of money in reduced rates of transportation.

The subject of taxation has always engaged the attention of the Grange, and it is through the influence of this farmers' organization that in many states the burdens of taxation have been, in a measure, at least, equalized by a more equitable assessment of real estate between town or city and farm property, and by the enactment of laws taxing personal property and corporations which had hitherto paid little, if any, taxes for local or state purposes.

The Grange is strenuously opposed to adulterations of all kinds, and mainly through its influence State and National laws have been enacted to control the sale of oleomargarine and other butter frauds, and protect the great dairy interests of the country from these vile compounds which the unscrupulous manufacturers would place upon the market as pure butter.

Through the influence of the Grange most maple sugar producing states have enacted stringent laws against the adulteration of this farm product, thereby protecting both producers and consumer from a spurious article.

The Grange successfully fought the driven well and sliding gate patents in the courts, saving enormous sums of money in royalties which were being extorted from farmers and others using them.

Through the influence of the Grange upon Congress the extension of the patents on sewing machines was prevented, saving to the people fully fifty per cent. in the prices, amounting to millions of dollars annually.

The Grange has a grand record of usefulness in legislation in every state in the Union for its influence on the side of justice and equality in the enactment of many wise and judicious laws in the interests of the people, and for the protection and advancement of farming industries.

A recent victory of the Grange, and one of its grandest achievements, is the establishment of rural free mail delivery in various sections of the country. The Grange was the first organization to publicly proclaim that if it was right for the government to carry mail to the homes of people in the country, and through the discussion of the question and intelligent presentation of the matter to Congress, appropriations have been secured; first, for experiment, and now practically for permanent establishment of the system of rural free mail delivery. This breaks up the isolation of farm life, will tend to secure better roads, and advance farm values wherever it extends. The results in this matter alone will justify the entire cost of the Grange from its establishment to the present day.

---

There is no tree that rears its crest,  
 No fern or flower that cleaves the sod,  
 No bird that sings above its nest,  
 But tries to speak the name of God,  
 And dies when it has done its best.  
 —Selected.

### **Students Visit Southern Ohio Stockmen**

Forty-three students from the College of Agriculture, together with Professors Price, Plumb and Gay, made a trip on November 3 to Chillicothe, where they were met with rigs and conveyed to Mr. James Smith's farm which is already famous for its herd of Red Poll cattle. After spending the remainder of the day with Mr. Smith they returned to Chillicothe and the following morning took the train for Lyndon, Ohio. Here they were also met by conveyances and taken to the home of Mr. Dan Black. He is at present feeding a car load of long yearlings for the International and five more car loads for the European market. Mr. Black owns the only wellbred Clydesdale in Ohio at the present time.

The boys not only had an enjoyable time, but made it profitable by inspecting some of the finest cattle in the country which gave them some drill for the coming test at Chicago. The crowd returned in good spirits late Saturday evening with a warm spot in their hearts for their most courteous hosts.

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### **Lessons from Potato Variety Tests in Clinton County**

S. B. STOWE.

In producing farm crops it is undoubtedly a fact that the maximum yield is greatly influenced by the variety of plant grown. This relation can be determined only by experiment. By subjecting each variety to the same conditions of life it is possible to draw some conclusions as to their respective merits. Perhaps this cannot be decided in a single season, but the results for a series of years would certainly furnish evidence in favor of some variety in that particular locality. Of course all this implies observation and it is some of these observed facts that will be mentioned in this paper.



Ten varieties were chosen for the test. The plats were all prepared in the same way and the potatoes planted at the same time. Cultivation was the same with each variety. The climatic conditions were such that each one had a chance to do its best, there being plenty of moisture and good growing weather. In a test of this kind there are four things which should be specially noted; first, the ability of the growing plant to withstand disease; second, its ability to yield a large quantity of marketable potatoes with a minimum amount of small ones; third, a consideration of the cooking qualities; and fourth, as regards the commercial or marketable qualities.

The varieties tested were both early and medium in maturing. This division is made because three matured at an early date and the others at that time given as characteristic of medium varieties. No effort was made to compare with late planted as it has been proved that they do not yield well in this section. The date of planting was April 1st. The following four varieties were secured from the experiment station and the seed was northern grown: Iona Seedling, Witow's White Mammoth, Carmen No. 3 and President Roosevelt. The three early varieties were from the southern part of the state. They were New Queen Rose, New York Market and Pure Gold. The others, Seneca Beauty, Rose of Erin and Sir Walter Raleigh, were home-grown.

Before taking up the special objects of the test, attention is called to the difference in the hardness of the plants. From the very start there was a striking variation as to the size and thriftiness among the different kinds.

Those plants from the northern grown seed came up at least three days before the others and in a week's time were four

inches above the rest. They were not only ahead at the start but kept ahead throughout the season. The bearing which this had upon the yield can be noted later. The plants from the southern grown seed grew faster and matured quicker than those of the home grown and this may be accounted for by the fact that they were all early varieties.

Taking up the first of the objects in view, the damage by blight upon early varieties far exceeded that of the others. The highest estimate was upon the Pure Gold, the leaves seeming to suffer all at once and I believe fifteen per cent. to be a conservative estimate. The lowest was three per cent. for the Seneca Beauty, and Carmen No. 3 followed with five per cent. As to scab little difference was noticed, all being remarkably free from it.

The most important consideration of course is that of the yield, which will be given in some detail. The difference in the producing qualities is certainly striking and will be brought out in the following table:

#### NORTHERN GROWN.

Iona Seedling . . . . .	45	2½	47½
Whiton's Whit M'th. . . . .	47½	½	48
Carmen No. 3. . . . .	46	½	46½
President Roosevelt. . . . .	45½	1	46½

#### HOME GROWN.

Seneca Beauty . . . . .	28	1	29
Sir Walter Raleigh . . . . .	28	1	29
Rose or Erin . . . . .	36	1	37

#### SOUTHERN GROWN.

New Queen Rose . . . . .	22	7	29
Pure Gold . . . . .	25	4	29
New York Market . . . . .	27	2	29

Here we see a difference of nineteen pounds between the best and poorest; and this difference was upon plots containing twenty-six hills each. Such a difference upon a crop of several acres would determine whether the investment was profitable or not. The fact that

northern grown seed produced so much better raises the question as to the advantage of such seed. Can it be that the change in climate has been the cause of their doing so much better? This one observation seems to bear out the fact, but a series of tests would prove it more conclusively. The excessive amount of small potatoes among the early varieties proves that they are unfit for a general crop. And at this place it might be suggested again that these suffered a great deal more from blight than the others. The reason for this might be questioned.

Each variety was tested to ascertain its cooking qualities. There was little difference but we are inclined to place Carmen No. 3 and Sir Walter Raleigh in the "fair" class, with all the others as being "good," the only objection to those named being that they were inclined to be somewhat watery, hence not such good cookers.

The fourth and last consideration is the commercial quality. The market demands a smooth, medium sized, solid and well matured potato. In deciding this the verdict of the dealer was used in part, the different grades being designated by the words "good," "fair," or "poor." Carmen No. 3 and Sir Walter Raleigh were classed as "good." This was from a market standpoint alone, it having been observed that they were somewhat deficient in cooking. However, they were exceedingly smooth, even in size and presented a very attractive appearance. All the others were classed as being "fair" except the New Queen Rose and Pure Gold, which were under size, even after they had been rigidly sorted as shown in the table. No objection could be made to size among the other kinds, but all were inclined to be somewhat rough in appearance. The Seneca Beauty was objected to mostly on

account of its pink color which is not popular among consumers.

The results of this experiment suggested three questions and proves three facts. The first question is why did northern grown seed when taken to a warmer section, yield so much better than any other? Second, why were the southern grown so inferior and subject to disease? Third, why do early varieties mature sooner than medium and late when all are planted at the same time? It might be mentioned that what are ordinarily classed as medium and late varieties showed but little difference in their dates of maturing even though all were planted at the same time. This experiment did prove that tests are necessary to learn what variety is best adapted to certain land. Second, that the climate does have a great bearing upon the yield of different varieties, and third, that careful observation coupled with complete records is necessary to make sure of, existing variations.

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### Silk Culture in America

— W. H. DILATUSH.

When America was colonized, England was in the midst of many agricultural experiments, among which was silk raising. The king became interested in this new project and strongly urged Virginia, the climate and conditions being favorable to try silk culture.

Before Jamestown was a decade old it had sent silk to England. In 1620 a law was passed compelling the planting of mulberry trees upon the leaves of which the larvæ feed, and skilled Frenchmen were sent over to teach the settlers silk culture. The instructions were of little benefit, for hardly had operations begun when the Indians revolted which of course put an end to the first attempt.

The second attempt was made in 1655, when Edward Diggs, governor under the commonwealth, announced that he had raised four hundred pounds of cocoons during his first year in office. This created fresh enthusiasm and Diggs sent to Turkey for an Armenian as an instructor in the work. This foreigner was paid a large salary for his instructions and also received a liberal reward when he had actually produced ten pounds of silk. However, this attempt succeeded but little better than the former in Virginia.

It may be interesting to note here some of the popular beliefs held at this time concerning the silk worm. The caring for the worms was looked upon as being the duty of the women and daughters of the house, since it was light work and needed delicate attention.

It consisted of feeding, cleaning, drying and airing them. In that day the instructors urged very strongly that the quarters of the silkworms be perfumed with some sweet-scented herb as bunches of rosemary and stalks of lavender. In cool weather a pan of hot coals burning benjamin or some sweet gum was placed in the room, and no one smelling of onions, garlic or any other strong scent, could go near them lest the worms die. It was also asserted that the worms were very sensitive to loud sounds and were easily frightened.

In 1679 the king sent a band of Huguenot refugees to South Carolina to raise silk. They had on board a store of silkworm eggs but the worms hatched out before the ship landed and immediately perished for want of food. A little later the trustees of Georgia started out with extravagant hopes of raising silk. Twenty thousand people were to be employed in this great attempt. The eggs and machinery were procured and the mulberry trees set out. Dissatisfaction

arose and some one destroyed the entire concern. With the downfall of this establishment about \$7,500 were lost and this quieted the silk fever for some time.

However, the enthusiasm has continued to rise and fall even up to the present day. Periodic attempts have been made since 1680 to restore the fallen industry, the most successful of which was begun in 1901, by the secretary of agriculture. He had been traveling extensively through the south, investigating agricultural conditions and possibilities. It became apparent to him that something should be done to relieve the conditions of the poor people of the southern states, particularly the negroes. The idea of silk culture suggested itself to him. He knew it to be a household industry, in the southern countries of Europe, which not only increased the national wealth and prosperity, but also the income of the extremely poor. Accordingly he asked congress for an appropriation of \$10,000, for investigation in silk culture, which was granted.

The investigation was assigned to the division of entomology. The entomologist realized that practically no market existed in this country for cocoons. He also realized that without a market it was next to impossible to create a supply. It seemed to him, therefore, that the first step was to secure the planting of a number of mulberry trees in advantageous locations, upon which the worms were to feed, and also to educate a number of people in the best methods of silk culture. The first efforts of the department were accordingly directed and are still being directed towards these ends.

During the summer of 1902 the entomologist visited the southern countries of Europe, where he purchased a supply of mulberry cuttings and silkworm eggs. Early the following spring the mulberry



cuttings were sent to all applicants and later eggs were distributed in small lots to all persons who were able to assure the department that they possessed a sufficient supply of silkworm food. The persons to whom eggs had been sent were notified that the department would purchase their cocoons at European prices, and several hundred pounds were obtained in this way. It was the object of the department in thus purchasing the cocoons to create for a time what might be termed an artificial market. This was to interest persons throughout the country in the art of silk culture, and to keep alive the interest so far as possible until the time comes when other markets will be supplied.

From the experience of the department it is plain to see that it is an easy matter to arouse an interest in silk culture. There are thousands of people who are anxious to increase their income by even a slight amount. However, many people have exaggerated ideas concerning the amount of profit in this new industry, and accordingly many being disappointed with the meager sums which they receive abandon the work. Others seem satisfied and interested and at present European prices for cocoons it seems certain that enough people in the United States will take up the industry to assure a large annual crop. When this is produced silk mills will spring up in those portions of the country that are best adapted to silk culture. This will mean employment for a portion of the surrounding community as operatives in the mills, while those remaining at home can busy themselves with silk raising.

### Grange Degrees

The subordinate Grange meets weekly or semi-monthly, and confers the first four degrees of the Order.

The Pomona Grange meets monthly or quarterly with subordinate Granges within its jurisdiction, and confers the fifth degree.

The State Grange meets annually, and confers the sixth degree. Its province is the promotion of Grange work within the respective states.

The National Grange meets annually, and legislates in the interest of the Grange in all lower degrees. The seventh degree is conferred only at the sessions of the National Grange, and is the highest degree of the Order.

The ritualistic work of all the degrees is beautiful and impressive; the lessons taught are appropriate to the farmer's life and surroundings, and the moral and religious influence is such as to lead to higher aims and purposes, and a more exemplary life in every respect.

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Hamilton, O., Nov. 6, 1905.

Dear Sir: The next annual meeting of the American Oxford Down Record Association will be held Tuesday, December 19, 7:30 p. m., in Pure Bred Record Building, Union Stock Yards, Chicago.

The postponement of the International Live Stock Exposition to December 16-23, will give stock men two weeks more time to prepare for winter before going to the show. And we shall expect to see at this meeting many of our members who would have been too busy to leave home two weeks earlier.

W. A. SHAFOR, Secretary,  
Hamilton, Ohio.

R. J. STONE, President,  
Stonington, Ill.

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"Do not save the loving speeches  
For your friends till they are dead;  
Do not write them on the tombstones,  
Speak them rather now instead."

### Some Blue Ribbon Winners

J. V. HYATT.

The Agricultural College of old Ohio State and especially the Department of Animal Husbandry is exceedingly fortunate in having access to such a collection of good horses for class use as those on hand at all times in McLaughlin Bros.' stables. But being within easy reach of these stables would be worth practically nothing, were it not for the universal good will and friendly treatment that the genial members of this firm always bestow upon the classes and individuals from the college.

These busy men take an active interest in the Agricultural College and work is never so urgent but that they will take time to lead out a good ring of horses for class judging practice. They even stand ready at any time to take the horses to the judging room in Townshend Hall, notwithstanding the fact that this must often mean a great deal of trouble and loss of valuable time. And right here I take the pleasure of expressing, in some slight degree, our appreciation and thanks for the many favors that have been bestowed upon us by these men, our friends.

I spent the other afternoon looking over their horses and talking with Mr. Potts and the boys. And such a bunch of good horses as I saw! They add one more proof to the statement, so often up held in the show ring, that McLaughlin Bros. are America's leading horse importers. Such universal excellence is never seen elsewhere except in the large shows and there the winners are almost always from these stables.

The advertising columns of the live stock journals contain very bold statements by many importing firms which are often misleading unless upheld by show ring results. And right here is

where McLaughlin Bros. justify their advertising statements. They speak boldly but unlike so many they corroborate every statement by showing at the leading fairs and shows and winning the lion's share of blue ribbons. They don't come out with flash advertisements and then steer clear of all show ring competition. It is not simple "hot air" that is dished out by them to the public, but plain truths bought by ability in judging and hard, careful work.

Their horses have been shown at six fairs so far this year with the following results. At Ohio State Fair every first competed for; at Minnesota Fair all firsts save one and all championships on Percheron, Belgian and French Coach. Every first and championship on Percheron and French Coach at Montana State Fair. At the Lewis and Clark Exposition they won all firsts and championships on Percherons and French Coach. At Utah every first competed for and all firsts and championships at the American Royal. This is quite a record for the horses now on hand and augurs well for success at the coming International. But to uphold these fine fellows and augment their numbers there is a large importation of 105 exceptionally good individuals due to arrive here December 5, from which 25 head have been selected and entered in the different classes. This will give McLaughlin Bros. a show of no less than 50 head for their great gathering of draft and carriage horses.

These stables have held excellent animals other years, but I believe they have even a better collection this year than ever before. And especially is this noticeable in the Percherons, a very uniform lot, showing the most quality, scale, strength of back and loin, and good bone together with good all-round beautiful action ever seen in so many of any draft

breed. I saw ten three-year-olds led out, all of which will weigh from 1875 to 1950, and everyone a good one, and the two-year-olds are equally as good. In fact comparisons here are not only odious but very unwise as one is bound for trouble as soon as he tries to draw a general comparison between the different classes.

Each of the breeds represented has many individuals worthy of special note, but I will only mention one or two from each show class.

In the aged Percheron class the great Damocles is first noticed, a big blocky black, whose wonderful scale, beautiful carriage and white markings make him conspicuous in any company. And a careful examination is no disappointment, but reveals his right to the blue ribbon that he has won wherever shown. His front, back and loin are almost perfect, his legs good and in fact the only valid objection that can be offered to him is that he is slightly rough in the rump.

Of a somewhat different type is the dark gray four-year-old Vercingetorix, a horse of about 1950 pounds, very smooth, strong and clean of bone and in action good. He is a good all round drafter of the proper kind and one that by his dark dappled color and light mane and tail will attract the eye of the passer-by every time. There is a sort of honesty and strength of appearance about him that will win him favor. He has a first to his credit at Rouen.

Rosenberg, a three-year-old, is a wonder, almost a perfect type of Percheron with scale and quality. He is a black with especially strong spring of rib and loin, smooth rump, good thigh and finely chiseled hock. His bone and feet are of the sort you look for in a drafter, while in style and action he is all you want. He weighs 1900, and has to his credit a first

and championship at St. Paul and Portland, the only places he has been shown.

Fusian, another black of a little more rangy type, is a very strongly made, tppy individual with good action at the walk and trot. He won first at Ohio and the American Royal.

In the two-year-old class it is a toss-up between two dark grays, one the well-matured, blocky Doyen, and the other Indiscret, a rangy, stylish goer with great promise for future development. Doyen is undoubtedly the most nearly made of the two and is a grand individual of the good, strong work horse type. He is very smoothly and closely made, has good action, an intelligent looking, well-carried head and weighs over 1800. He was first at Portland.

Indiscret, as above stated, is more rangy, possessing action of the real coach horse type, and good strong clean bone and well formed foot. He is not quite as smooth as Doyen, but has him beaten in the pastern as well as in action, and with another year's development ought to be in a class almost by himself. He won first in class at Ohio State Fair.

Of the Belgians there are two especially good five-year-olds, Rostan, a rather light roan, and Mignon d'Heure, a very dark strawberry.

Rostan is of quite commanding appearance, massive and compact, weighing over 2100. He has a beautiful head, strong crest, smooth shoulder and back and loin second to none. His rump is very smooth and full, but he might carry down a little farther in the thigh. His feet and legs are of the right kind and his walk and general show-ring appearance are of the very best.

Mignon d'Heure is a very neat, smoothly made individual of somewhat less scale but great quality and general excellence.



To lead the French Coachers is the wonderful Apropos, whose intelligent appearance, beautiful contour and high, frictionless action wins the ardent admiration of everyone that sees him. This is the only show horse I noticed in the stables that had been kept from last year, and while he was then a grand horse and a winner he is enough better now to justify his wintering as he is better developed,—more fully matured and still retains his original cleanness and freshness of appearance. He is large for the breed, rangy and shows a general firmness and symmetry that speaks for endurance.

The bay three-year-old Crasseville is another attractive fellow of the right type, good sized, clean limbed level-headed and fine acting. His head and neck are well moulded and he has a way of holding them that is very attractive. He is a flash animal and has won his blue ribbon wherever shown.

In the two-year-old class the black Dourak has been doing his share of winning, taking first at Ohio, Portland and Kansas City. He is a neat quiet looking colt with first-class high, level action of the sort that endures.

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### **Great Sacramento Valley may be Irrigated Soon**

Issued by the Sacramento Valley Development Company.

The Senate Chamber of California's Capitol at Sacramento was the scene on October 21 of an irrigation meeting of unusual importance. It was a convention of Sacramento Valley people called for the purpose of considering plans for developing what is declared by leading engineers to be the greatest irrigation opportunity on the American continent.

Governor George C. Pardee, of California, who is also President of the Na-

tional Irrigation Congress, presided at the meeting, which was called by the Sacramento Valley Development Association, an organization of Sacramento Valley counties. Men prominent in state and national affairs were there, leading citizens from every portion of the Valley, representing large private interests, counties, municipalities, and organized commercial and improvement bodies.

The result of the meeting was a strong declaration for united effort by the people of the entire Valley to bring about the early construction of some portion of what the officials of the Reclamation Service call "the great Sacramento Valley Irrigation Project." A resolution was unanimously adopted pledging the united support of the entire Valley to such locality as may be selected by engineers of the Reclamation Service as the proper place of beginning.

Among those who addressed the meeting at length were Governor Pardee, Congressman Duncan E. McKinlay of California, Supervising Engineer J. B. Lippincott of the National Reclamation Service, President N. P. Chipman of the California State Board of Trade.

The irrigation possibilities of the Sacramento Valley have come prominently into notice through the work of the National Reclamation Service. Several years ago the United States Geological Survey began investigations. Since the Reclamation Service was created the work has been broadened and now includes stream measurements, surveys of storage reservoir sites, tests of the water itself, topographic surveys of the Valley floor, investigations to determine the duty of water, plans and estimates for the construction of dams and canals.

The surveys have determined that the Sacramento Valley proper comprises 2,661,120 acres, exclusive of the channel

surface of perennial streams. The marked advantages for irrigation that have attracted the attention of the Reclamation Service are the vast area of fertile, irrigable lands, the unusual number and extent of natural storage basins, the ample water supply, and the winterless climate, which, with irrigation, admits of practically continuous cropping, thereby insuring much greater returns from land irrigated than could be secured where nature is less kind.

That the water supply is ample is shown by the annual discharge at the mouth of the Sacramento River, reported by Reclamation Service engineers to be twenty-six million acre feet, enough to cover the entire floor of the Valley more than nine feet deep.

Rain falls only in winter in the Sacramento Valley and watershed and consequently storage is essential to any comprehensive scheme of irrigation. Fortunately, nature has provided immense basins where waters may be stored on a vast scale at comparatively small cost. The natural advantages for storage are remarkable. The most striking instance is the Big Valley reservoir site on Pit River, where, according to the report of Engineer Lippincott of the Reclamation Service, the entire flow for a year from four thousand square miles of watershed with a heavy rainfall, may be impounded by the erection of a dam, 120 feet in height, at a cost for construction of from \$2.01 to \$2.23 per acre foot capacity.

The investigations have now progressed to a point where the engineers in charge are enabled to reach definite conclusions and have partially developed plans for a great irrigation system to cover the entire Valley floor. Mr. Lippincott has said of this project that it constitutes one of the greatest, possibly the greatest, irrigation opportunity in America. Fortunately it can be con-

structed in units, some of which will not call for the expenditure of any vast sum.

When the Irrigation Committees of the United States Senate and House of Representatives visited the West last year they spent two days in the Sacramento Valley, which enjoyed the distinction of being the only contemplated irrigation project visited by the official party outside of those, the construction of which had been actually determined upon and provided for by allotment from the Reclamation Fund.

The event of the Congressional visit to the Sacramento Valley was a banquet given at Red Bluff, near the head of the Valley, and it was the speeches delivered at the close of this banquet that gave the inspiration for the Irrigation Convention just held. Among those who spoke at this banquet were Governor Pardee of California, Hon. J. I. Parker, representing the Department of the Interior; United States Senators Francis G. Newlands of Nevada, Frank T. Dubois of Montana, Frank Flint of California; Congressman Theodore A. Bell of California, and President W. S. Green (now deceased), of the Sacramento Valley Development Association, the pioneer advocate of irrigation in California.

Irrigation development has been slow in the Sacramento Valley because of the fact that the land is held in vast tracts and farmed mostly to wheat, the long dry summers admitting of the culture of early maturing crops alone on the dry lands. Within the past two or three years, however, there has been a marked change. Two large canals have just been completed by private corporations and a third, begun many years ago and abandoned on account of litigation, is now being completed, and in the irrigated areas diversified farming is creating vastly increased values.

Since the Reclamation Service began investigations in the Sacramento Valley, doubt has been expressed as to the acceptance by Sacramento Valley land owners of the conditions imposed by the Reclamation Act, but there are many evidences that the Sacramento Valley land owners have awakened or are awakening to the real benefit to their lands and to them of the Reclamation Service project. One enterprising community in the Sacramento Valley is already organizing a Water Users' Association to deal with the Government and urge the construction of the unit that would benefit this community. A report made to the Valley Irrigation Convention showed about 26,000 acres already signed to this preliminary organization.

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#### **President Thompson and Dean Price at Washington**

The Association of American Agricultural Colleges and Experiment Stations met at Washington November 14, for a few days' session to discuss the interests of agriculture.

President Thompson and Dean Price attended and took part in the exercises. Dr. Thompson has served as president of this Association for the past year. It seems natural for Ohio to furnish presidents for national organizations, and beside Proesident Thompson has made a very fit man for the place, representing the head of a large and growing institution and being owner and superintendent of a good Ohio farm.

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The N. P. Bowsher Company loaned a No. 8 power mill with sacking elevator to the Agronomy Department, to be used in the laboratory by students taking that work.

#### **Alumni Notes**

F. W. Taylor, B. Sc. (Agr.), '00, writes as follows: "I am located at Durham, N. H. My mission is to teach the youthful horny handed sons of toil of the old Granite State some of the principles of modern agriculture. I also have charge of the Agricultural Department of the State Experiment Station. There are three O. S. U. alumni here besides ex-Instructor Gibbs.

"The stork stopped at my house last June and left a young professor of agriculture. He is even more handsome than his father."

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E. L. Shaw, B. Sc. (Agr.), '02, is also located at Durham, N. H., where he is Assistant Professor of Agriculture in the State College and Associate Agriculturist at the Experiment Station.

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Leroy Tonkinson, short course in agriculture, is on the farm near Xenia, O., R. R. 2., where he is specializing in poultry raising.

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Ernest J. Riggs, B. Sc. (H. and F.) '95, O. S. U., and M. Sc., Cornell, '97, has been for some time past practicing general farming with especial attention to sheep breeding and fruit growing. His present address is Raccoon Island, Ohio.

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D. A. Tobias, short course in Agriculture, now acts as dealer in grain, feed, coal and live stock. His address is Marion, Ohio, R. R. No. 4.

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W. W. Trobridge, short course in Agriculture, is located at Painesville, Ohio, where he is practicing general farming.

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Ted Roush, short course in Agriculture, is farming near Hillsboro, Ohio, R. R. No. 7. Mr. Roush expects to follow agriculture as a life work.



S. J. Weaver, short course in Agriculture, of Leipsic, Ohio, is teaching school in Van Buren township, Putnam county.

F. D. Rubins, B. Sc. (Agr.), '04, whose address is Kenton, Ohio, is now acting as proprietor of the Kenton Duck and Broiler plant.

R. F. Smith, ex-'06, has been at home on the farm since leaving O. S. U. His present address is New Carlisle, Ohio.

R. H. Studebaker, ex-'07, is also near New Carlisle. He is at present engaged in farming.

F. L. Thomas, who finished the short course in '02, is located at Chesterfield, Ohio, where he is employed as book-keeper in the First National Bank of that place.

B. O. Stingel, short course in Agriculture, is located on his father's farm near Coshocton, Ohio. Mr. Stingel's aim is pure-bred stock raising and he will try to put into practice some of the ideas learned while here at the O. S. U.

'04—Clara Tangeman has a position at the W. E. & I. W., teaching domestic science at the evening classes. It is a good position and we wish her the best of success.

'05—Vivian Watt is in Alleghany, Pa., teaching domestic science.

'05—Alice Spitler is in Arizona as instructor of domestic science and domestic art in a high school.

'05—Miss Frieda Hirsch is enrolled in the Arts College and she expects to get her B. A. degree this year.

'05—Miss Nola Knox is staying at home in Westerville, O.

'05—Lulu Thompson is at the W. E. & I. W., having charge of evening classes in domestic science.

'05—Clara Campbell is at home this year.

'06—Edna Kellerman is at home in Missouri for this winter.

'08—Bertha Petry is at home this winter but hopes to finish with the '09 class.

Dora Eggleston did not return this year and is at home in Washington, C. H.

Emily Hollister and Letta Whims have changed from Domestic science to the Arts College.

Louise Whipps has changed from Arts to the College of Domestic Science.

'08—Grace Marion and Olive Sheets are attending Domestic Art this year.

Floribel Schubert and Grace Huston have elected Domestic Science:

'09—At the beginning of the year twenty-four young women were registered in the Domestic Science College. Four have already left, Miss Kellar to attend the University of Illinois, Misses Herdman, Flatter and Hunston returned home for various reasons. We hope those left will keep their courage for the remainder of the year and by their strength of numbers encourage more young women to enter this course.

Miss Secrest left the Domestic Science Department last June and this winter she occupies the position of head of a similar department in San Luisobispo, Cal. Miss Virginia Babb, from the New York Teachers' College, New York, takes Miss Secrest's place, and already she has endeared herself to her students and they are showing a great deal of interest in her work.

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The Japs have recently begun to import milk-cows from the United States. Their first shipment consisted of fifty head of the Jersey and Ayrshire breeds.

### Agricultural News

Professor H. E. Van Norman, head of the Dairy Department of Purdue University, has resigned to accept a similar position in the Pennsylvania State College. Professor Van Norman has been identified with the dairy interests of Indiana since 1898, and during that time he has built up a strong dairy department at the college; established an efficient up-to-date creamery; enlarged and improved the creamery course; placed a field inspector over state creameries and factories, and built up the State Dairy Association. Pennsylvania is to be congratulated on the services of such a thoroughly equipped and progressive man.

The Illinois State Laboratory of Natural History is making a qualitative and quantitative survey of the bird life of a typical grain and cattle farm of Central Illinois, with the intention of continuing and extending statistical studies of this description until average results are arrived at, good for the various crops and regions of the state for the different seasons of the year. This is taken up mainly as a study in ornithological ecology, but it will nevertheless have an economical value as helping to determine the real significance of birds in relation to agriculture.

The International Live Stock Exposition has been postponed until December 16-23. This step has been taken in order to give ample time for the completion of the new exposition building. Great difficulty has been experienced in getting construction material, and no expense is spared in rushing the work. Three shifts of men work night and day and as high as \$9 per day has been paid to some of the workmen.

More than unusual interest seems to manifest itself in the coming meeting

and it is safe to say that numbers of farmers will attend from every state in the Union. This exposition has come to be recognized as one of the greatest institutions of agricultural education in the country and its popularity and value is sure to grow with each succeeding year.

The Missouri Agricultural College at Columbia is planning to offer a short course this winter for busy practical farmers who have no time for regular courses. This course begins January 4 and continues eight weeks, and will give instruction in stock judging, dairying, horticulture, animal husbandry and farm crops. The farmer will be given just such knowledge as he can turn to practical use when he goes back home in the spring.

Unusual interest has been taken in a recent decision of the Supreme Court of California. A recent law ordered growers or packers to mark all packages of fruit with the name of the locality in which it was grown. A dealer refused to mark such packages, and was arrested and fined under the law. He appealed and the court sustained him. Certain sections of the state were infected with insects, and the law was passed in order to show whether fruit came from clean or infected districts. For this reason the law seemed unjust as it gave certain special market privileges; and again where fruit was gathered from different localities, graded and repacked, it would be impossible to mark packages with the place of growth.

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### University News

Professor McCall has arranged with several of the leading machine companies to place up-to-date machinery in the laboratory during the fall term and surrender such material at the close of the spring term to the factories, thus al-

ways keeping well improved articles on hand for the University.

Heretofore some out-of-date models have been kept on hands. By the new method there may be as much material obtained as floor space in the agronomy laboratory will allow.

Forty-five samples of soil has recently been received from Soils Department at Washington, representing twenty-three soil types between New England and California. These are to be used in the Soils Laboratory for practicum work.

The old piggery, which for years has been located on the low lands, subject to overflow of the river, has been moved to a higher location, on the north side of the barnyard just east of the cattle barn. This is a far better site, and the sanitary condition will be more easily controlled in future.

A pure bred Poland-China boar has recently been purchased of Mr. Chas. E. Keller of Newark, Ohio. This boar was sired by Captivator, second in class at the Louisiana Purchase Exposition in 1904, and is out of a daughter of Chief Climax, a son of Chief Perfection 2d, the most noted boar of the breed living. The Keller herd has attained a high reputation during the past year, Mr. Keller owning the champion sow of the breed at the leading American shows, she never having been defeated.

At the forthcoming International Live Stock Exposition at Chicago, the University has entered for competition two Clydesdale mares, four steers and fifteen barrows. While it is not thought that we possess any grand champions, the feeling prevails that if present conditions continue, the animals shown will reflect credit on the University.

On Thursday afternoon, November 9, the Class in Animal Husbandry—12—

visited the Hartman Stock Farm and judged Percheron horses.

Mr. D. W. Black of Lyndon, who is one of the greatest feeders of beef cattle living, and who is a strong friend of the University, has recently presented us with a very choice steer, which is the cream of his selection from his large herd of feeders. This is distinctly a show animal, which the University hopes to properly feed and develop in future, that he may be of service in class room and show ring. The Department of Animal Husbandry also purchased from Mr. Black two choice steer calves of Hereford breeding, one being a selection from a bunch of about 50 head by Mr. Black and the other by Alex Argo, the University herdsman.

The students' judging contest will take place on Saturday, December 16, in the Live Stock Judging Pavilion at Chicago.

The Dairy School has a call for a man to edit a dairy paper in Iowa. There is a good opportunity for men in dairying who like journal work.

A brand new Simplex churn is ready for business in the creamery room.

Professor John W. Decker and E. S. Guthrie attended a dairy meeting at West Milton, Miami County, on November 14. A week later Professor Decker attended a similar meeting at Greenville, Darke County.

Not long ago Mr. Guthrie was called to a nearby creamery, which is one of the largest in the state, to aid in producing a higher flavor in the butter.

The buttermaker was using a starter, but it was very easy to see that he was not handling it right. In the first place, he did not select the best milk, but simply took it from the receiving vat. In the second place, he pasteurized not only



the milk for the mother starter but that with which he inoculated the cream, thus imparting to the cream and then to the butter a cooked taste. In the third place, he used only two-thirds enough starter to ripen the cream quickly and properly. When the above errors were corrected the butter responded with a much higher flavor.

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### **Some Practical Suggestions Concerning Seed Testing**

University of Arizona Agricultural Experiment Station Bulletin No. 55:

The practical planter bouys, plants, and grows seeds for profit, and hence, it is the best economy for him to test them for their percentage of germination, and where desirable, for their purity, before sowing them.

For the ordinary planter, the well known "dinner plate" tester made with two soup or dinner plates, and one or more moist strips of sterilized cotton goods, preferably cotton flannel, will be found to answer all purposes. The cotton strips are sterilized in boiling water to destroy spores of moulds and other fungi present, folded twice upon themselves, and placed in one of the plates, the seeds now laid between the folds of cloth so as not to touch each other, and the second plate is inverted over the first, thus forming a moist, aerated and more or less sterile chamber. The cotton strips must be kept well moistened, but not saturated, preferably water that has been sterilized by boiling, and allowed to cool before using. Two or three lots of seeds may be tested in the germinator at one time, but each should be contained in a separate cotton trip, and numbered to avoid error.

When, however, it is desirable to make several germination tests at one time, or when many varieties are to be tested, in-

stead of duplicating the plate germinators already described, the writer found the following germinator, suggested by Dr. Volney Spaulding, formerly of the University of Michigan, to be superior: A deep granite bread pan six or eight inches wide was obtained in which was kept about one-fourth inch of water; cotton flannel strips of any convenient length, two or three yards, and of the width of the pan were tacked crosswise at intervals of five inches; short galvanized wires about an inch longer than the width of the pan were inserted through these tucks and gathered together, thus forming the cotton strips into numerous folds or loops which were suspended in the pan above the water, by means of the supporting wires. The end of the strips being left sufficiently long to touch the water in the pan, the entire piece of cloth composing the loops, in which the seeds were placed, is kept uniformly moist. The cloth should be moistened before beginning the experiment, and, it is needless to add, sterilized.

A definite number of seeds taken as they come from an average sample are counted out for each germination test. For seeds in rather small lots, as garden seeds, fifty to one hundred will answer, while for cereals, grasses, clovers, and others used in extensive cultural operations, about two hundred should be used, and the tests duplicated when any doubt exists about the results. The tests should be examined from day to day, and the sprouted ones removed and counted, the number being recorded on a sheet of paper.

The length of time required for germination is dependent upon several factors, chief of which are moisture, temperature, vitality, and varietal differences, six to ten days being sufficient for most kinds. When tests are made dur-

ing the winter or early spring months, at which time it is usually most convenient, the germination should be conducted in a moderately warm room, so that the temperature will not fall below fifty degrees F. during the day. In the case of alfalfa and certain others of the clover family, a small percentage of the seeds will remain apparently sound at the close of the germination test. Allowance is usually made for these, one-third being counted as viable; i. e., capable of growth.

No test can be made with reference to the stock of seeds. Cauliflower, cabbage, turnip and beet seeds of poor stock—i. e., run out, are just as viable as those of good stock. The only means of remedy-

pound or bushel is now easily estimated and after its germination test has been made, the planter knows its exact value. By the purity test, also, the introduction of noxious weeds will be lessened, since one will not knowingly sow foul seed, and samples suspected of containing harmful weed seeds should be referred to the Experiment Station for examination.

The following purity and germination tests were taken from a series of experiments in seed testing carried on in the botanical laboratory during the last two years, the samples of seeds used being collected from various markets in Southern Arizona:

#### PURITY AND GERMINATION TESTS

Seed used.	Sample.	Pure seed.	Inert matter.	No. weed seeds.	Percentage purity.	Seeds used.	Seeds sprouted.	Seeds unchanged.	Percentage sprouted.
Alfalfa ....	No. 1 5gm.	4.53gm.	.46gm.	6	90.6%	200	188	10	95%
Alfalfa ....	No. 3 "	4.32 "	.68 "	0	86.4%	200	190	9	96%
Alfalfa ....	No. 4 "	3.58 "	1.42 "	3	71.6%	200	187	12	65%
Alfalfa ....	No. 6 "	4.47 "	.53 "	0	89.4%	200	189	10	96%
Alfalfa ....	No. 7 "	3.64 "	1.36 "	0	72.8%	200	151	33	81%
Sorghum ..	No. 1 30 "	29.18 "	.82 "	0	97.2%	100	88	0	88%
Wheat ....	No. 3 30 "	28.78 "	.94 "	10	95.9%	100	92	0	92%
Rye .....	No. 1 30 "	29.55 "	.45 "	0	98.5%	100	96	0	96%
Barley ....	No. 2 30 "	29.76 "	.24 "	0	99.2%	100	99	0	99%
Oats .....	No. 1 30 "	28.32 "	.59 "	298	94.4%	100	94	0	94%

ing this defect is to use selected, home-grown seeds, or to buy the best stock of reliable seed houses.

The careful planter will often find it desirable to make the purity test for seeds. For this purpose, a definite quantity of seeds by weight is taken from an average sample, and separated by hand into the following lots: (1) pure seed of the variety desired; (2) inert matter, including dirt, chaff, injured seeds, etc.; and (3) foreign seeds, including weed seeds. The amount of pure seed in a

It will be noted from the data that the sample labelled "alfalfa No. 1" contained 90.6% pure seed, of which 95% was viable, or 86% of the total sample, while of sample labelled "alfalfa No. 7" only 59% is capable of growing—i. e., 81% of the pure seed was viable, and 72.8% of the sample was pure seed. Sample No. 1 sold on the Phoenix market last year at 16c a pound, and sample No. 7 sold on the Tucson market at 15c a pound. It is quite apparent in this case that the highest priced seed is the cheapest for the

planter. Alfalfa samples No. 3 and 4 also sold on the Phoenix market at 16c a pound, though No. 4 contained 29% inert matter. In every case it is to be noted that the samples of alfalfa seed were remarkably free from weed seeds, though a few have contained seeds of other species of clover. Good alfalfa seed should not contain more than 5% inert matter, and should give a germination test of 95%. With the exception of sample No. 7, the germination test ranged between 95% and 96%. From the above data it is readily seen why poor stands of alfalfa are of common occurrence, though the usual amount of seed may have been sown.

Columbus, O., Nov. 6, 1905.

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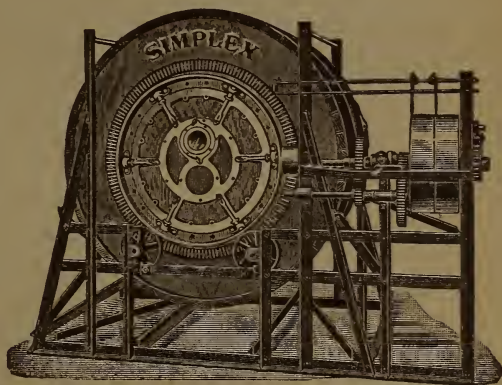
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